

Appl. No. 09/978,253
Amendment fax-filed on August 16, 2004
Reply to Office Action of June 22, 2004

PATENT

REMARKS/ARGUMENTS

Claims 15-20, 22, and 24-27 remain pending. Claim 15 has been amended to correct a typographical error, so that claim 15 now depends from pending claim 22 (rather than canceled claim 23). No other claims have been amended and no claims have been added or canceled. Re-examination and reconsideration of the claims, as amended, are respectfully requested.

Rejection under 35 U.S.C. §112, first paragraph

Claim 15 and 18-20 was rejected under 35 U.S.C. Section 112, 2nd ¶, as allegedly being indefinite. Claims 15 and 18-20 were inadvertently made dependent upon canceled claim 23, rather than claim 22 as intended. Applicants note that the prior amendment filed on August 16, 2004 for this case, in the second paragraph of page 7, stated that claims 15 had been amended to depend from claim 22 (rather than claim 23). Additionally, Applicants note that the examiner understood that claims 15 and 18-20 were to depend from claim 22, as evidenced by the examiner's ability to substantively address these claims in the Office Action. Hence, correction of this typographical error does not require an additional search. Applicants respectfully request that this error be corrected, that the rejections under §112 be removed, and that the claims be allowed.

Claim Rejections Under 35 U.S.C. § 103

Claims 15 and 18-22, and 24-27 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,868,735 to Lafontaine in view of U.S. Patent No. 6,235,019 to Lehmann et al. Such a rejection is traversed as follows.

As acknowledged by the examiner on page 3 of the Office Action of November 17, 2004, Applicants have previously argued that the cited references do not teach or reasonably suggest the use of a liquid coating at least a portion of an inner surface of a balloon. More specifically, claim 22 recites that a vessel wall is cooled by coating at least a portion of an inner surface of a balloon wall with a liquid *so that the liquid coating vaporizes*. As described in the second full paragraph on page 14 of the originally filed specification for this application, the coating of the balloon wall with a liquid which vaporizes within the balloon allows the enthalpy

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of vaporization to cool the surrounding vessel wall. The use of such a *vaporizing* coating within a balloon to cool a surrounding vessel wall is not remotely taught or suggested by the cited references.

In the Office Action of November 17, 2004, Applicants note that the examiner states the following:

In column 4, lines 55-57, Lafontaine discloses a liquid coating at least a portion of an inner surface of the balloon. [Office Action of November 17, 2004, pg. 3, first full ¶]

Column 4, lines 53-57 of the Lafontaine reference (which include the cited portion of the reference along with the entire paragraph in which it appears) actually read as follows:

Catheter 100 can be used in a manner similar to catheter 110, except that the coolant must also serve as the inflation fluid. It is contemplated that in most applications involving catheter 100, a liquid coolant such as saline solution will be used.

Applicants respectfully submit that this disclosure does not reasonably provide support for a rejection of the subject matter of claim 22. Specifically, the only coolant described in this passage of the cited reference is saline solution. Saline solution does *not* vaporize within a balloon so as to provide cooling of the surrounding blood vessel, particularly when the saline solution is pressurized so as to inflate a dilation balloon.

Making use of a liquid coating vaporizing within a balloon provides significant advantages over the saline liquid described in the cited portion of the Lafontaine reference. Specifically, a mixture of liquid and gas will remain at a consistent temperature so long as the pressure remains constant. For example, water vaporizes or boils at 212°F (or 100°C) at sea level, regardless of the many different methods commonly used to heat water. Applicants are the first to take advantage of this controllable-temperature aspect of vaporization by coating at least a portion of an inner surface of a balloon wall with a vaporizing cooling fluid. As this provides temperature control which was significantly enhanced over that which is available in the system

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described by Lafontaine or Lehmann, and as no suggestion for this advantageous method has been identified in the cited references (nor any other source), Applicants respectfully submit that the obviousness rejection of claim 22 is improper.

As *prima facie obviousness* of claim 22 has not been established, Applicants respectfully request that that claim (and all claims which depend therefrom) be allowed. Additionally, Applicants note that claim 24 is allowable for many of the reasons given above regarding claim 22, and that the dependent claims from claims 22 and 24 are allowable as depending from allowable base claims as well as for the novel combinations of elements recited therein.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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